FIG. 1

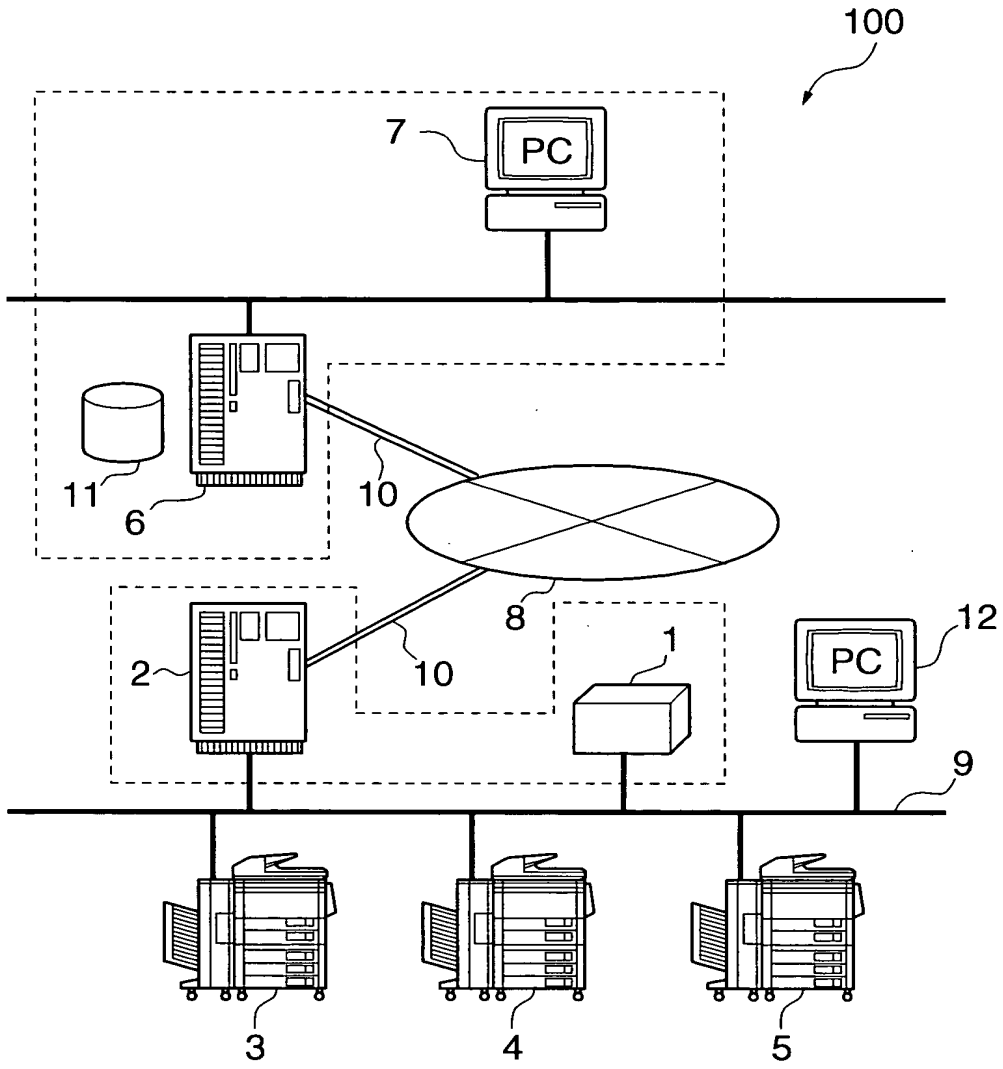


FIG. 2

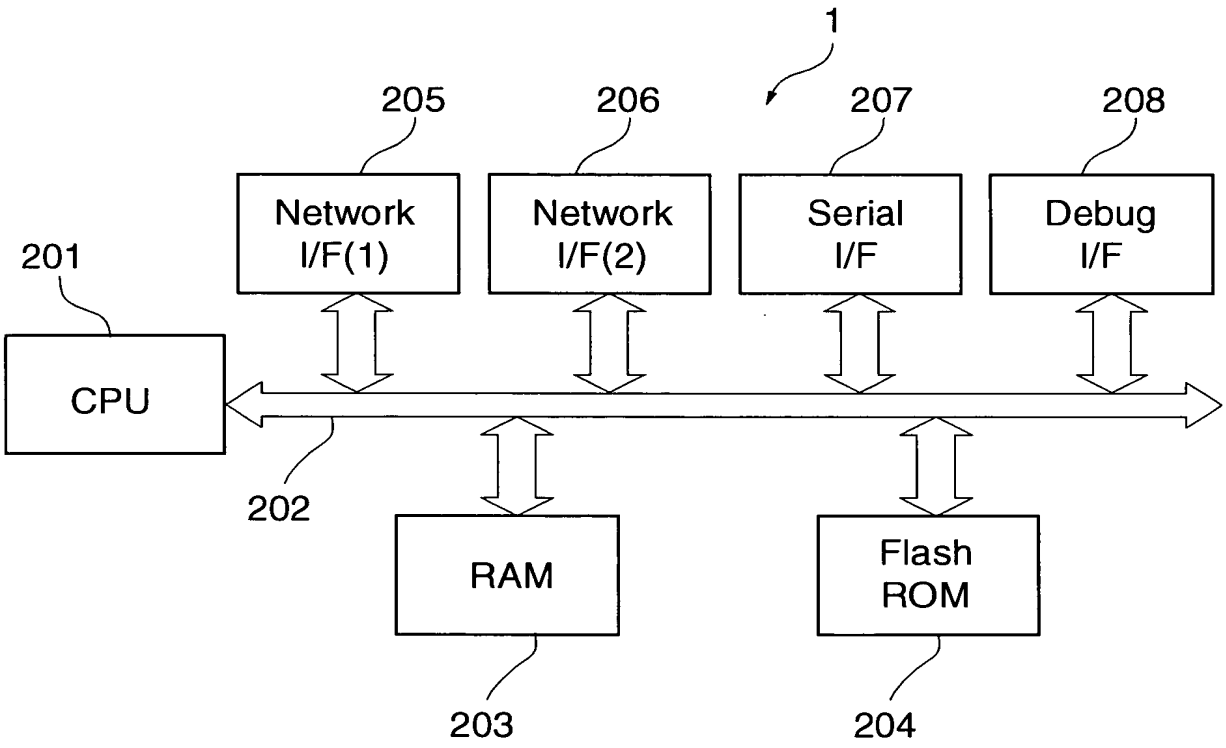

1
205
206
207
208
Network I/F(1)
Network I/F(2)
Serial I/F
Debug I/F
201
CPU
202
RAM
Flash ROM
203
204

FIG. 3

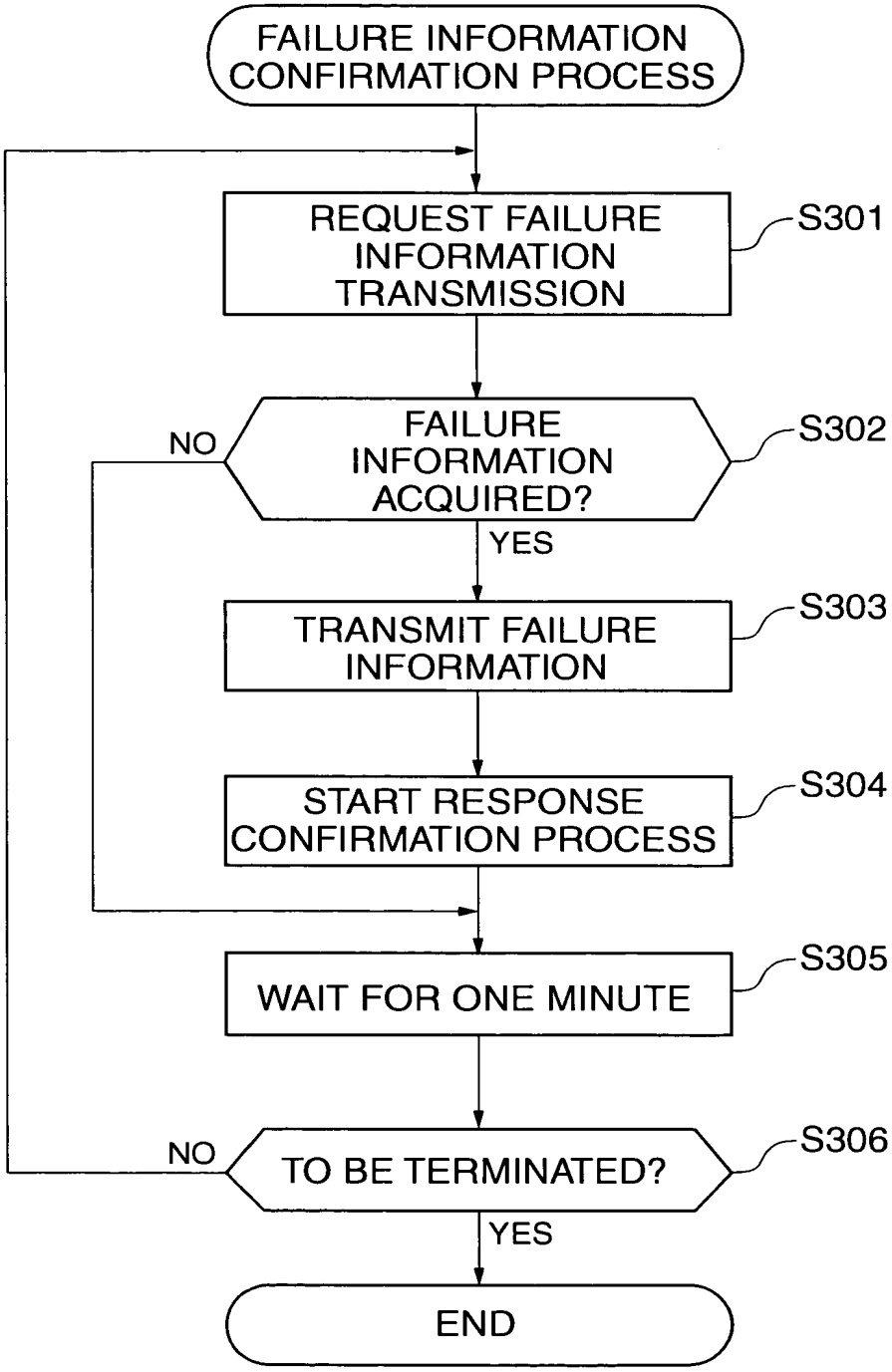

FAILURE INFORMATION CONFIRMATION PROCESS
REQUEST FAILURE INFORMATION TRANSMISSION
S301
FAILURE INFORMATION ACQUIRED?
S302
NO
YES
TRANSMIT FAILURE INFORMATION
S303
START RESPONSE CONFIRMATION PROCESS
S304
WAIT FOR ONE MINUTE
S305
TO BE TERMINATED?
S306
NO
YES
END

FIG. 4

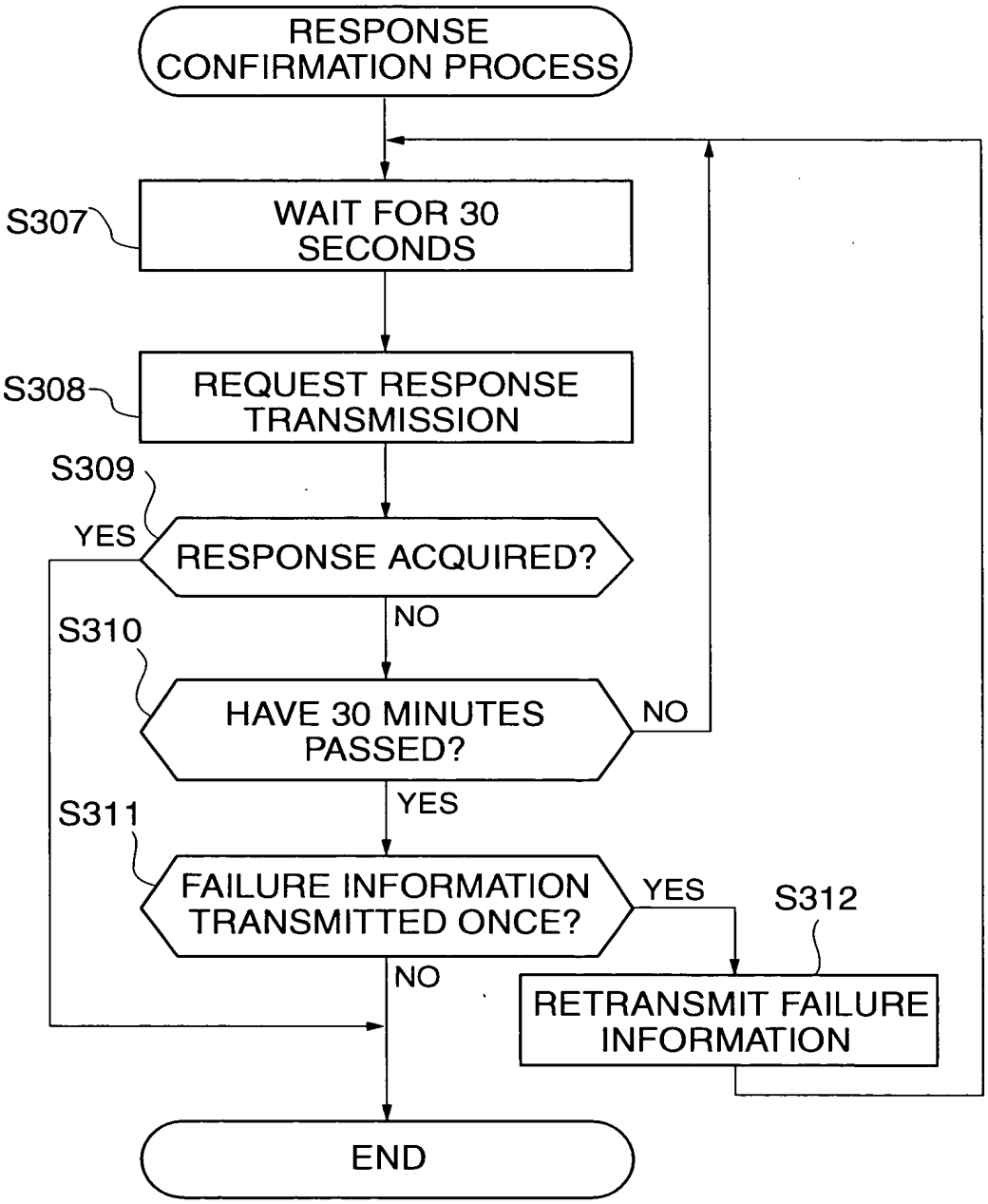

RESPONSE CONFIRMATION PROCESS
S307
WAIT FOR 30 SECONDS
S308
REQUEST RESPONSE TRANSMISSION
S309
YES
RESPONSE ACQUIRED?
NO
S310
HAVE 30 MINUTES PASSED?
NO
YES
S311
FAILURE INFORMATION TRANSMITTED ONCE?
YES
S312
NO
RETRANSMIT FAILURE INFORMATION
END

FIG. 5

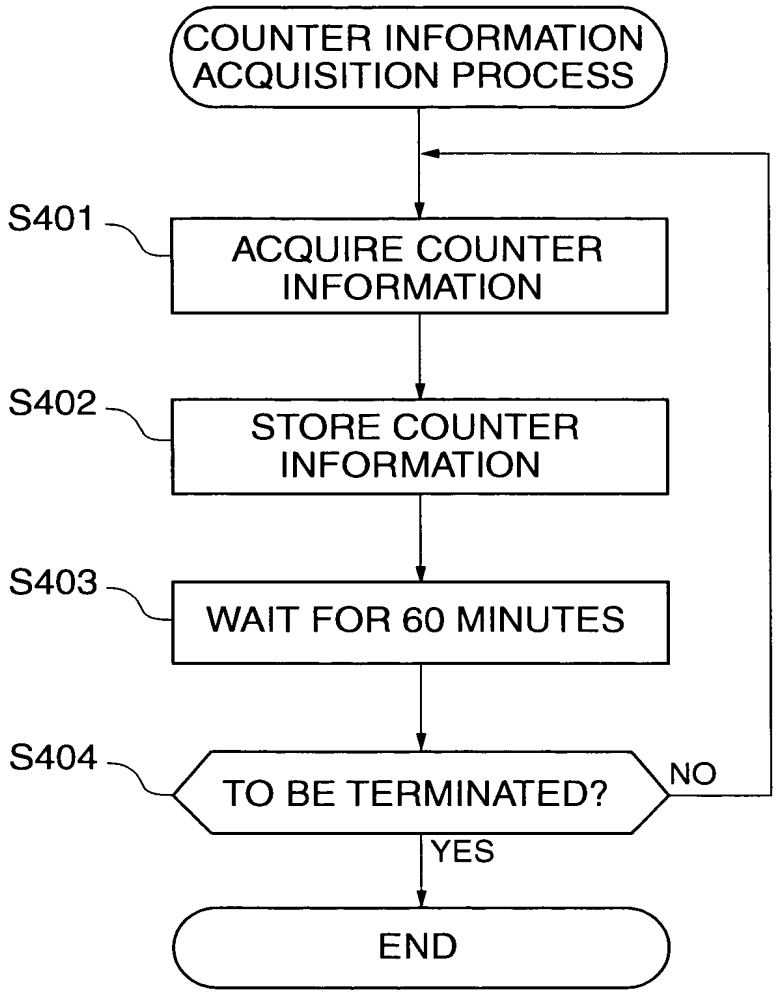

COUNTER INFORMATION ACQUISITION PROCESS
S401
ACQUIRE COUNTER INFORMATION
S402
STORE COUNTER INFORMATION
S403
WAIT FOR 60 MINUTES
S404
TO BE TERMINATED?
NO
YES
END

FIG. 6

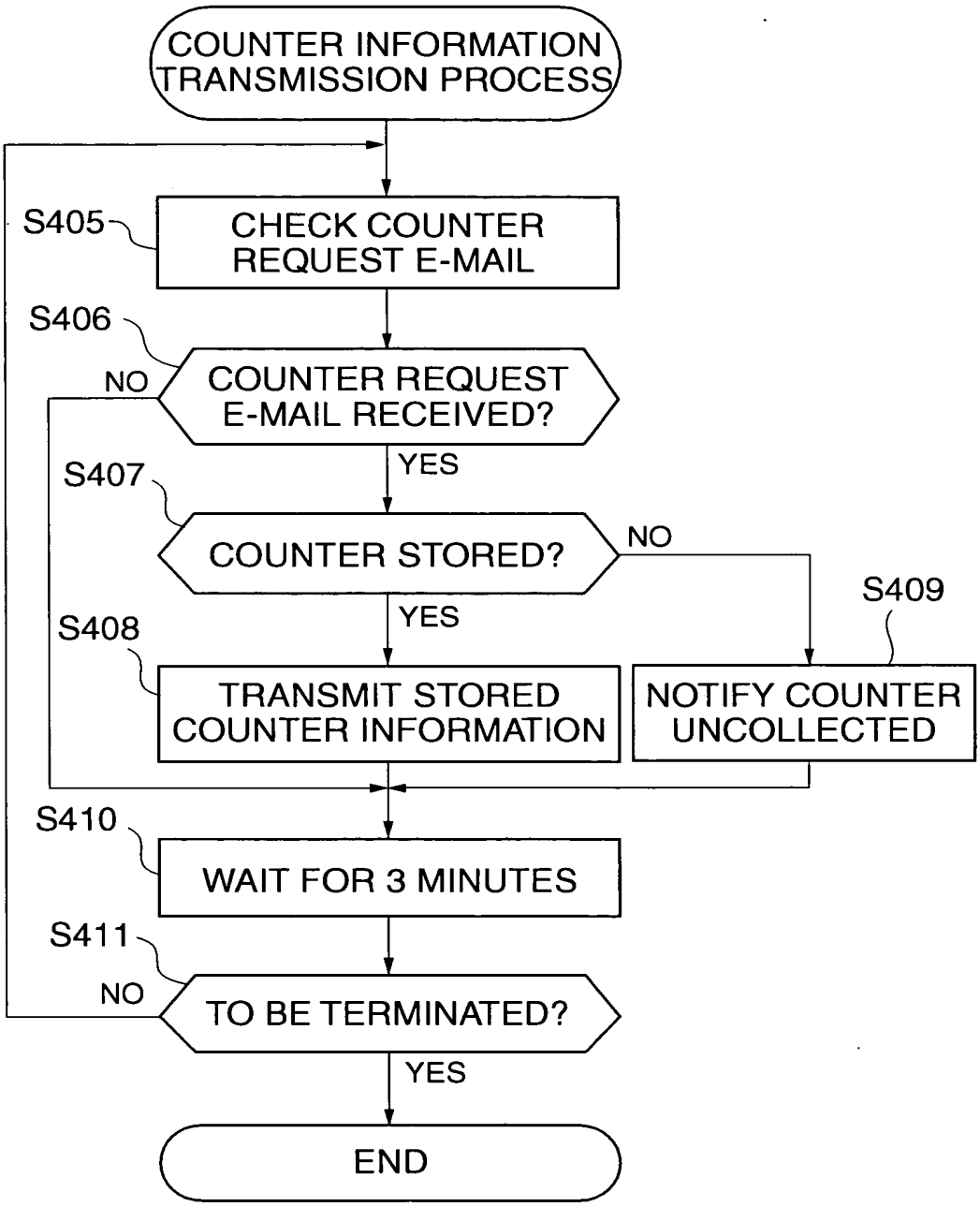

COUNTER INFORMATION TRANSMISSION PROCESS
S405
CHECK COUNTER REQUEST E-MAIL
S406
NO
COUNTER REQUEST E-MAIL RECEIVED?
YES
S407
COUNTER STORED?
NO
S409
YES
S408
TRANSMIT STORED COUNTER INFORMATION
NOTIFY COUNTER UNCOLLECTED
S410
WAIT FOR 3 MINUTES
S411
NO
TO BE TERMINATED?
YES
END

FIG. 7

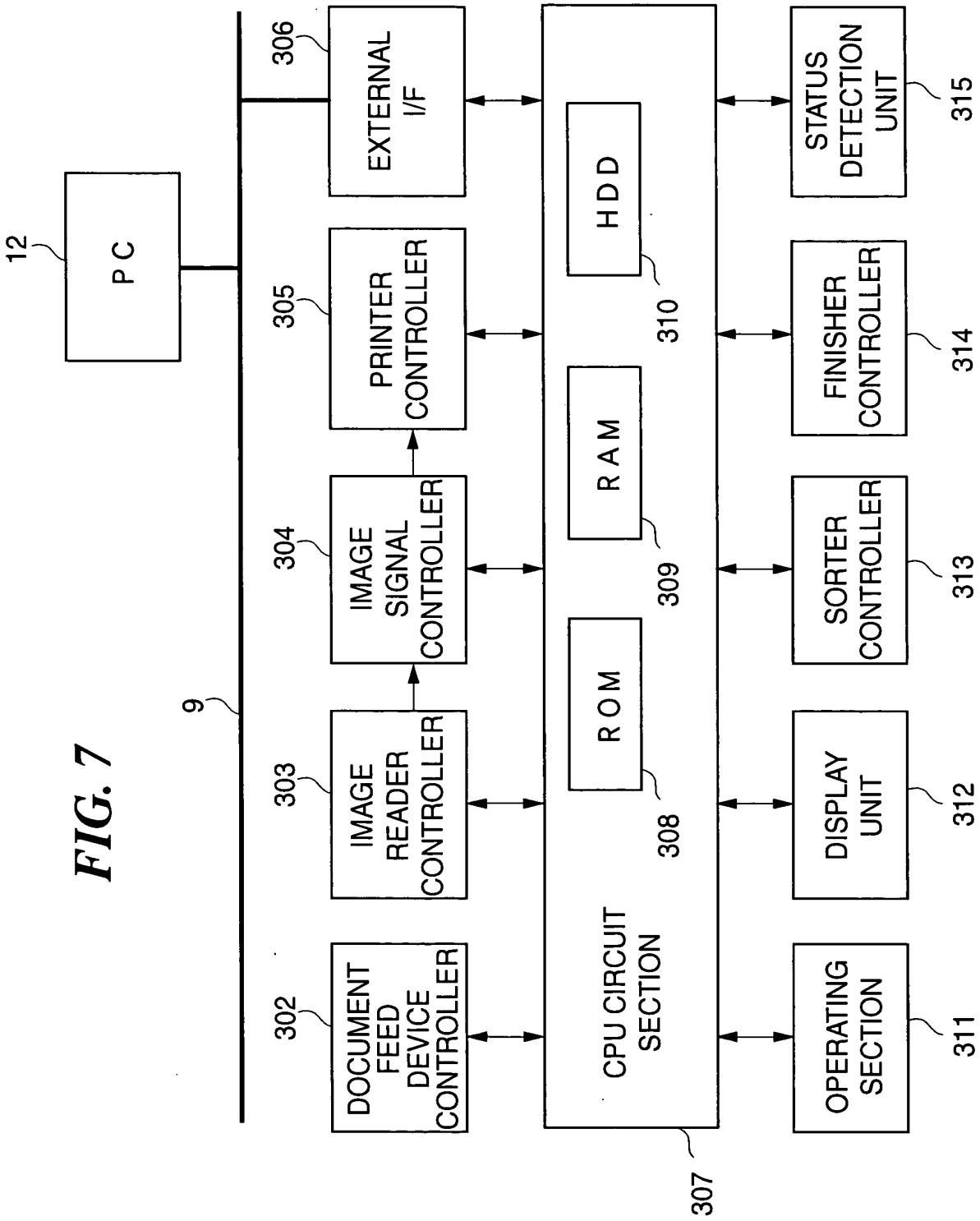

12
PC
9
306
EXTERNAL I/F
305
PRINTER CONTROLLER
304
IMAGE SIGNAL CONTROLLER
303
IMAGE READER CONTROLLER
302
DOCUMENT FEED DEVICE CONTROLLER
307
CPU CIRCUIT SECTION
308
ROM
309
RAM
310
HDD
315
STATUS DETECTION UNIT
314
FINISHER CONTROLLER
313
SORTER CONTROLLER
312
DISPLAY UNIT
311
OPERATING SECTION

FIG. 8

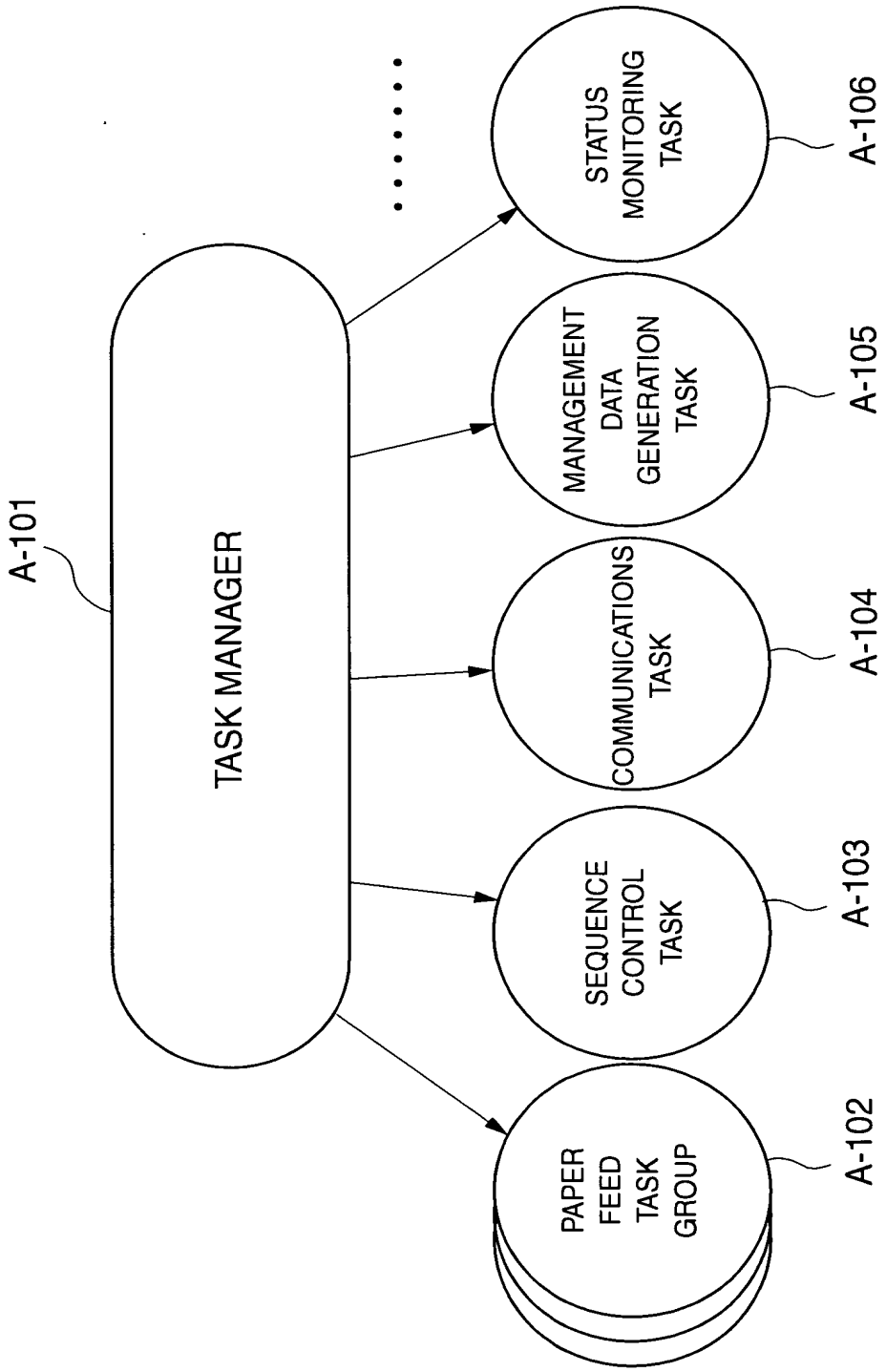

A-101
TASK MANAGER
PAPER FEED TASK GROUP
A-102
SEQUENCE CONTROL TASK
A-103
COMMUNICATIONS TASK
A-104
MANAGEMENT DATA GENERATION TASK
A-105
STATUS MONITORING TASK
A-106

FIG. 9

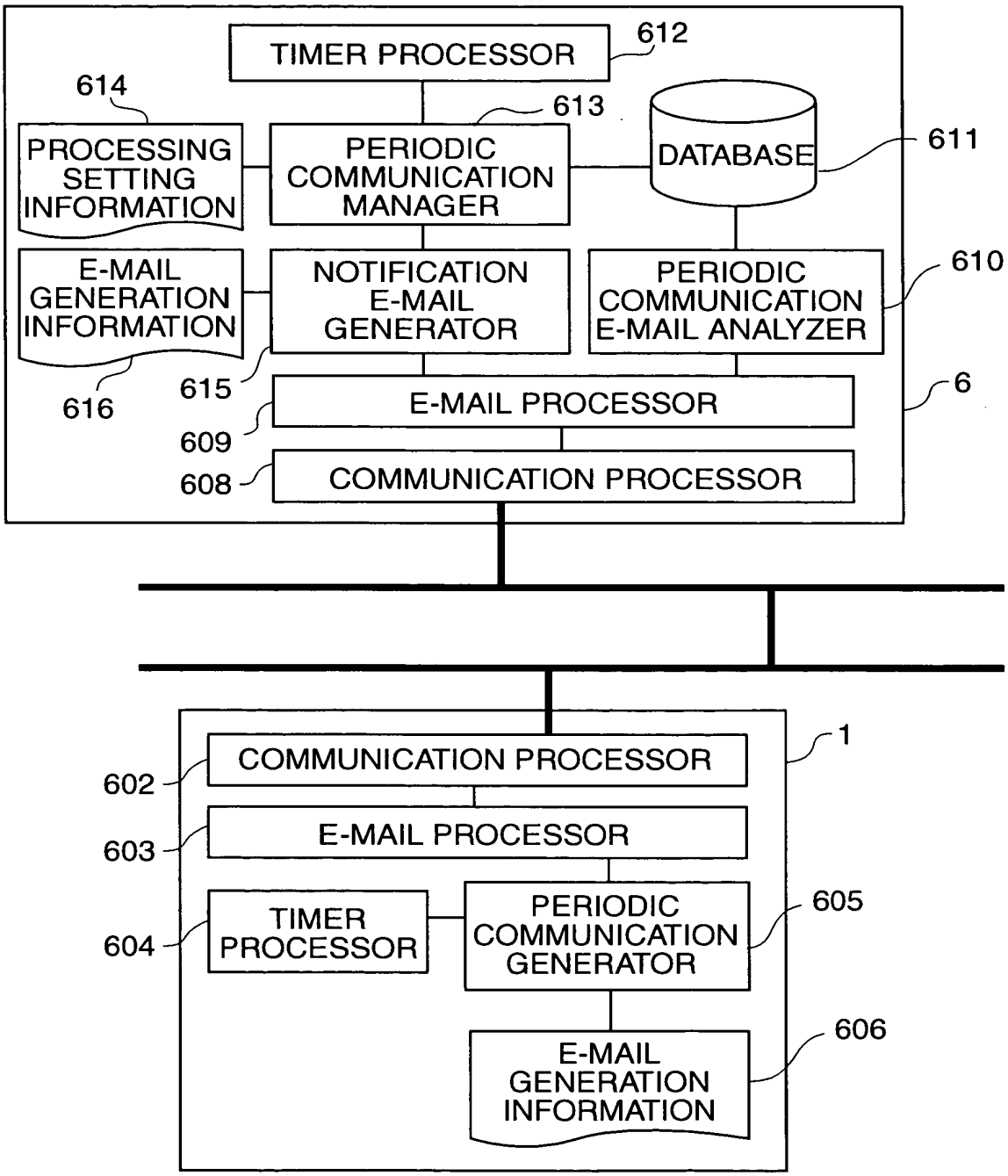

TIMER PROCESSOR
612
614
613
PROCESSING SETTING INFORMATION
PERIODIC COMMUNICATION MANAGER
DATABASE
611
E-MAIL GENERATION INFORMATION
NOTIFICATION E-MAIL GENERATOR
PERIODIC COMMUNICATION E-MAIL ANALYZER
610
616
615
E-MAIL PROCESSOR
6
609
608
COMMUNICATION PROCESSOR
1
602
COMMUNICATION PROCESSOR
603
E-MAIL PROCESSOR
604
TIMER PROCESSOR
PERIODIC COMMUNICATION GENERATOR
605
606
E-MAIL GENERATION INFORMATION

FIG. 10

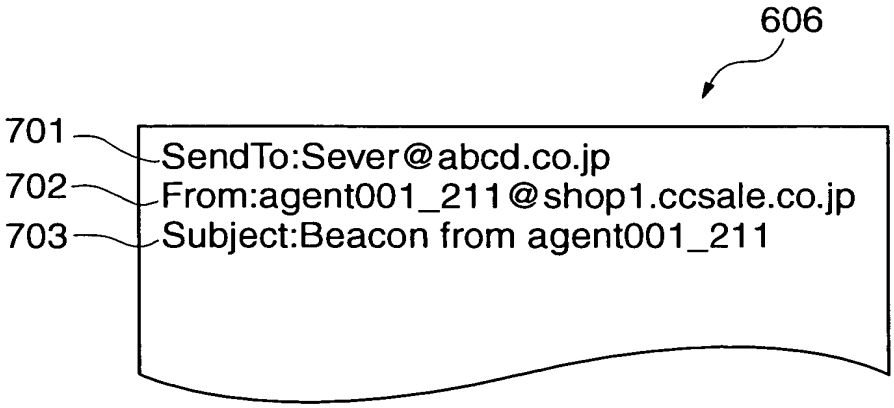

606
701
SendTo:Sever@abcd.co.jp
702
From:agent001_211@shop1.ccsale.co.jp
703
Subject:Beacon from agent001_211

FIG. 11

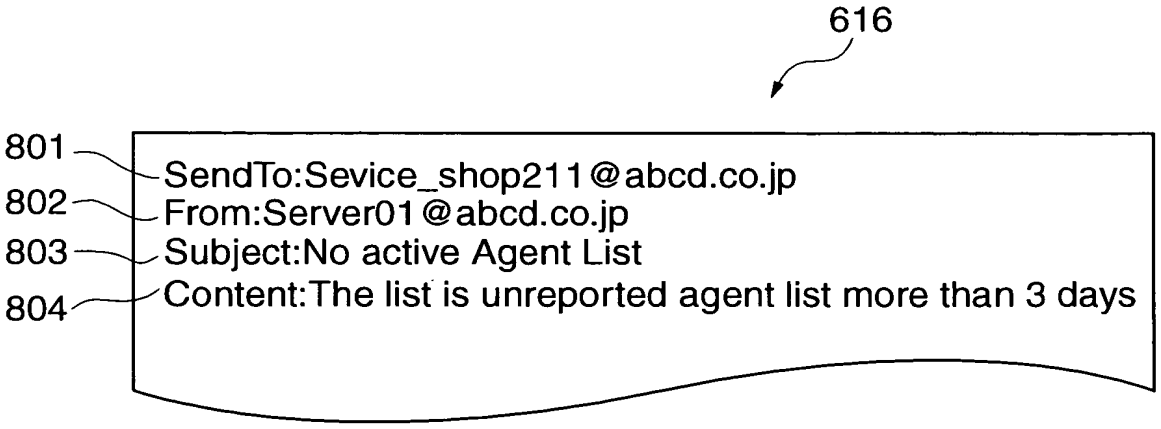

616
801
SendTo:Sevice_shop211@abcd.co.jp
802
From:Server01@abcd.co.jp
803
Subject:No active Agent List
804
Content:The list is unreported agent list more than 3 days

FIG. 12

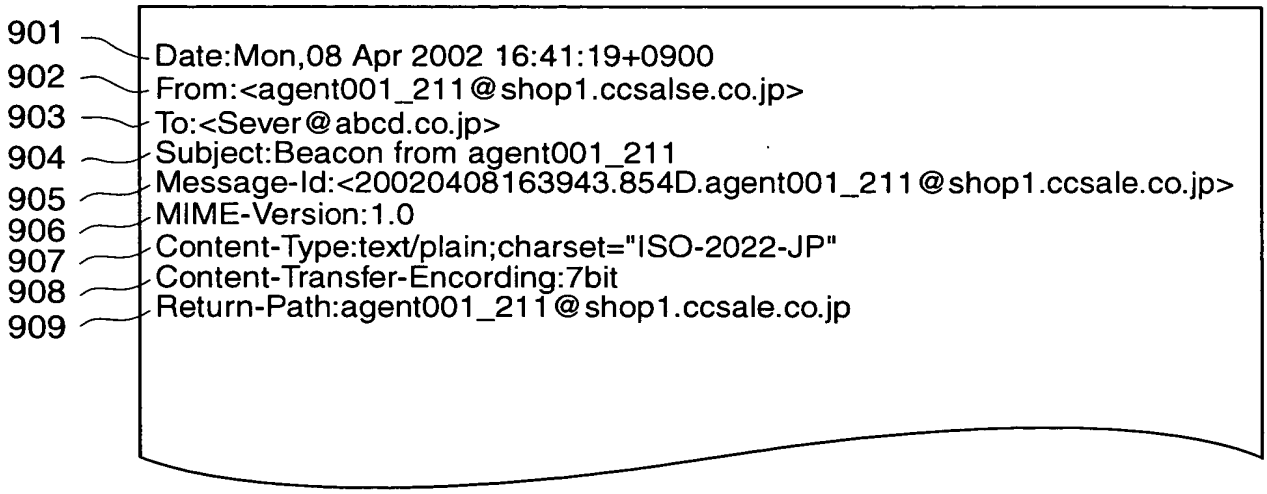

901
902
903
904
905
906
907
908
909
Date:Mon,08 Apr 2002 16:41:19+0900
From:<agent001_211@shop1.ccsalse.co.jp>
To:<Sever@abcd.co.jp>
Subject:Beacon from agent001_211
Message-Id:<20020408163943.854D.agent001_211@shop1.ccsale.co.jp>
MIME-Version:1.0
Content-Type:text/plain;charset="ISO-2022-JP"
Content-Transfer-Encording:7bit
Return-Path:agent001_211@shop1.ccsale.co.jp

FIG. 13

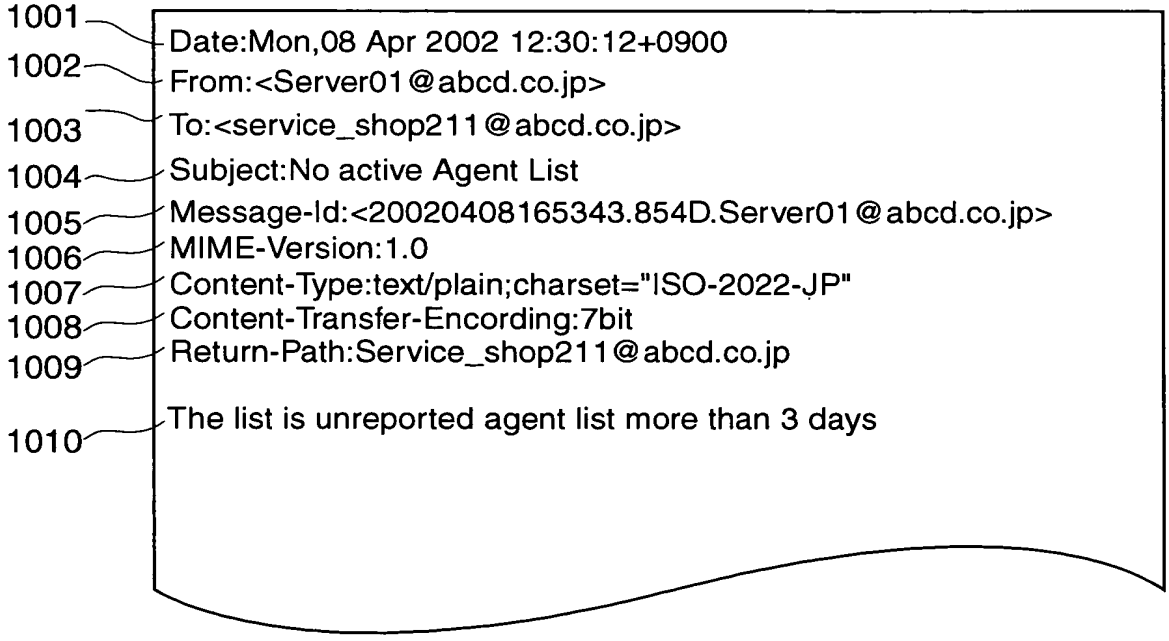

1001
1002
1003
1004
1005
1006
1007
1008
1009
1010
Date:Mon,08 Apr 2002 12:30:12+0900
From:<Server01@abcd.co.jp>
To:<service_shop211@abcd.co.jp>
Subject:No active Agent List
Message-Id:<20020408165343.854D.Server01@abcd.co.jp>
MIME-Version:1.0
Content-Type:text/plain;charset="ISO-2022-JP"
Content-Transfer-Encording:7bit
Return-Path:Service_shop211@abcd.co.jp
The list is unreported agent list more than 3 days

FIG.14

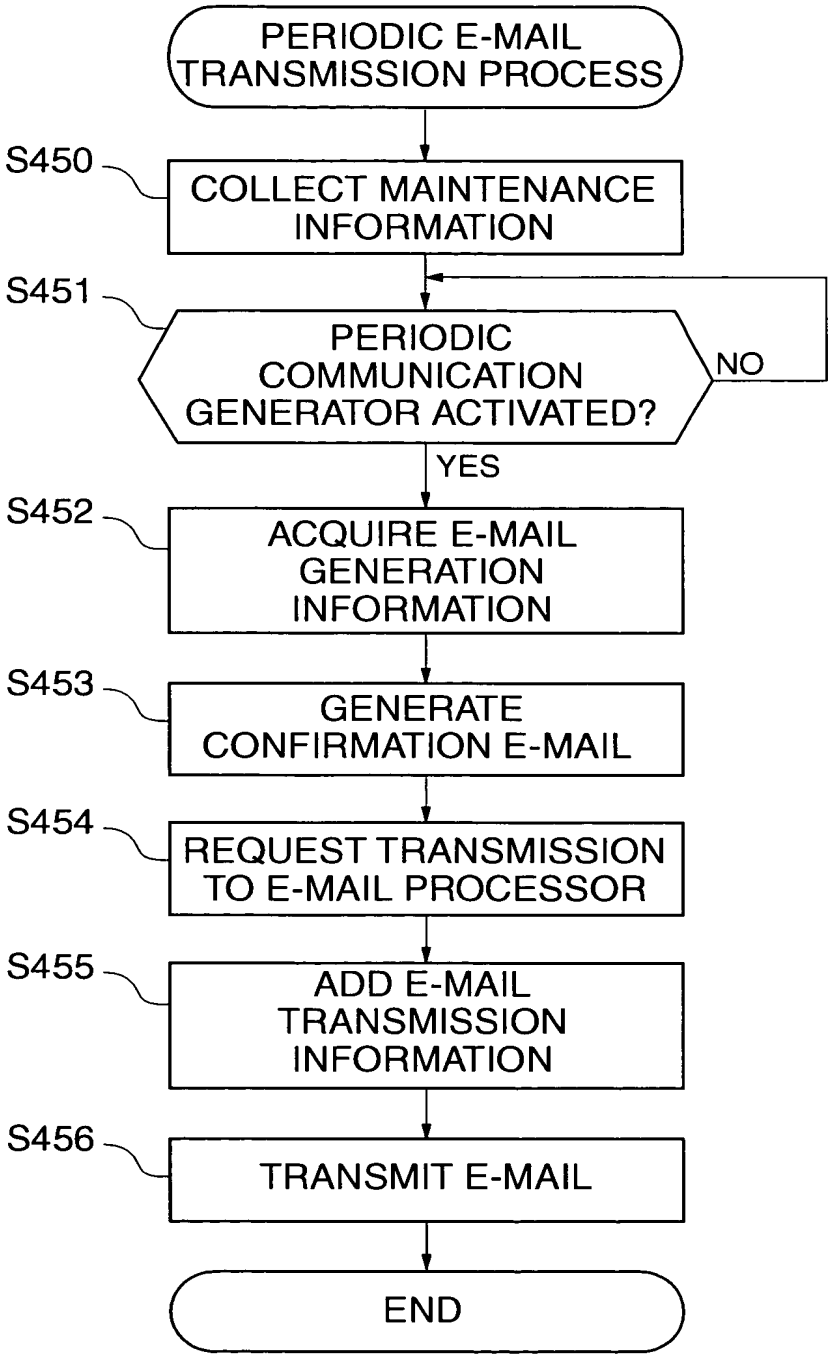

PERIODIC E-MAIL TRANSMISSION PROCESS
S450
COLLECT MAINTENANCE INFORMATION
S451
PERIODIC COMMUNICATION GENERATOR ACTIVATED?
NO
YES
S452
ACQUIRE E-MAIL GENERATION INFORMATION
S453
GENERATE CONFIRMATION E-MAIL
S454
REQUEST TRANSMISSION TO E-MAIL PROCESSOR
S455
ADD E-MAIL TRANSMISSION INFORMATION
S456
TRANSMIT E-MAIL
END

FIG.15

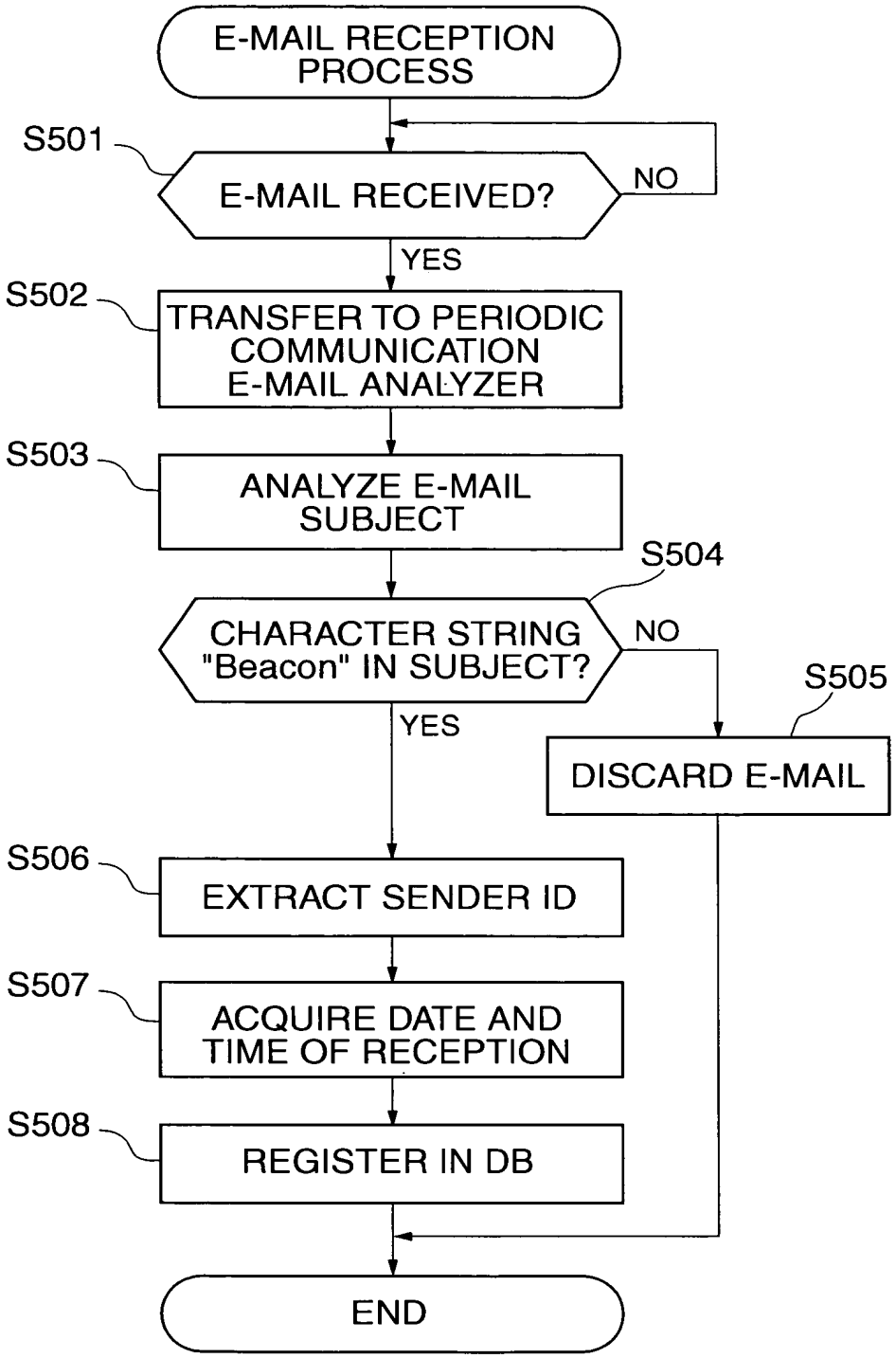

E-MAIL RECEPTION PROCESS
S501
E-MAIL RECEIVED?
NO
YES
S502
TRANSFER TO PERIODIC COMMUNICATION E-MAIL ANALYZER
S503
ANALYZE E-MAIL SUBJECT
S504
CHARACTER STRING "Beacon" IN SUBJECT?
NO
YES
S505
DISCARD E-MAIL
S506
EXTRACT SENDER ID
S507
ACQUIRE DATE AND TIME OF RECEPTION
S508
REGISTER IN DB
END

FIG. 16

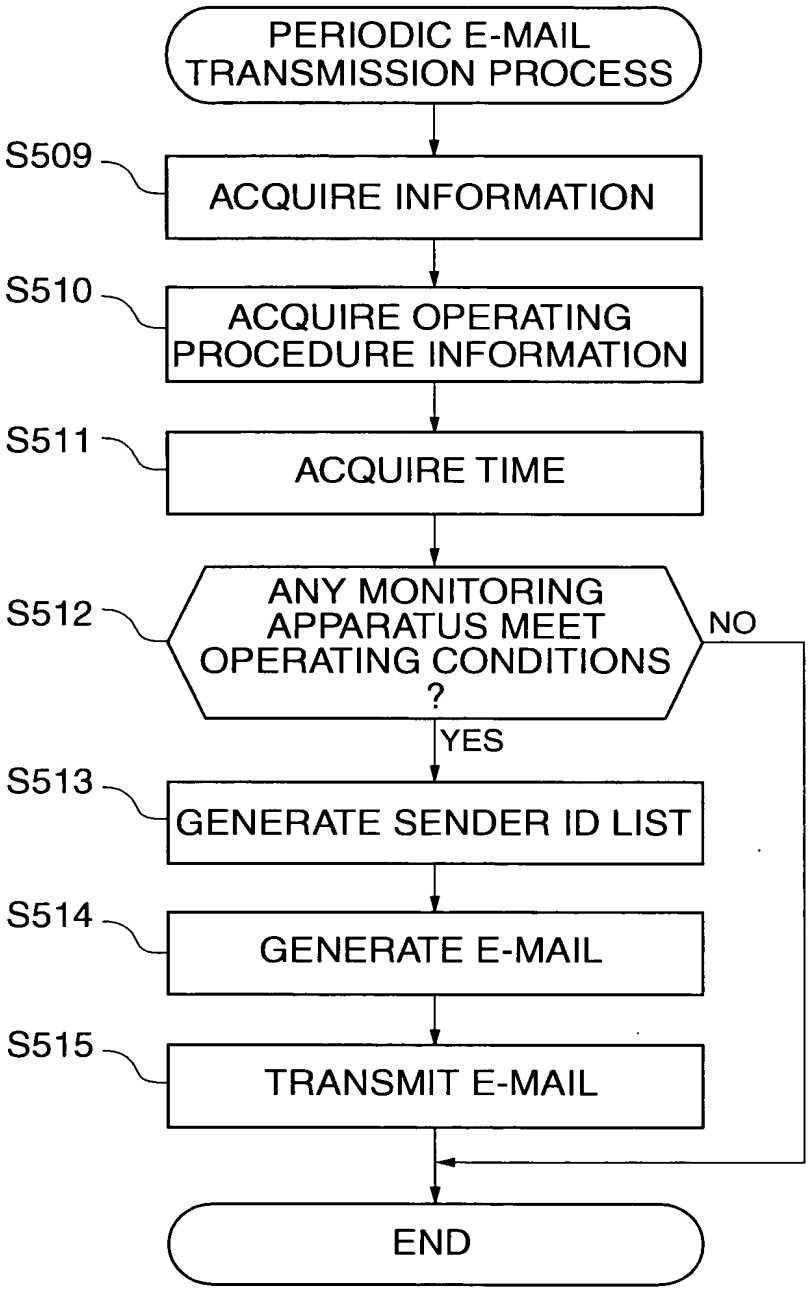

PERIODIC E-MAIL TRANSMISSION PROCESS
S509
ACQUIRE INFORMATION
S510
ACQUIRE OPERATING PROCEDURE INFORMATION
S511
ACQUIRE TIME
S512
ANY MONITORING APPARATUS MEET OPERATING CONDITIONS ?
NO
YES
S513
GENERATE SENDER ID LIST
S514
GENERATE E-MAIL
S515
TRANSMIT E-MAIL
END

FIG. 17

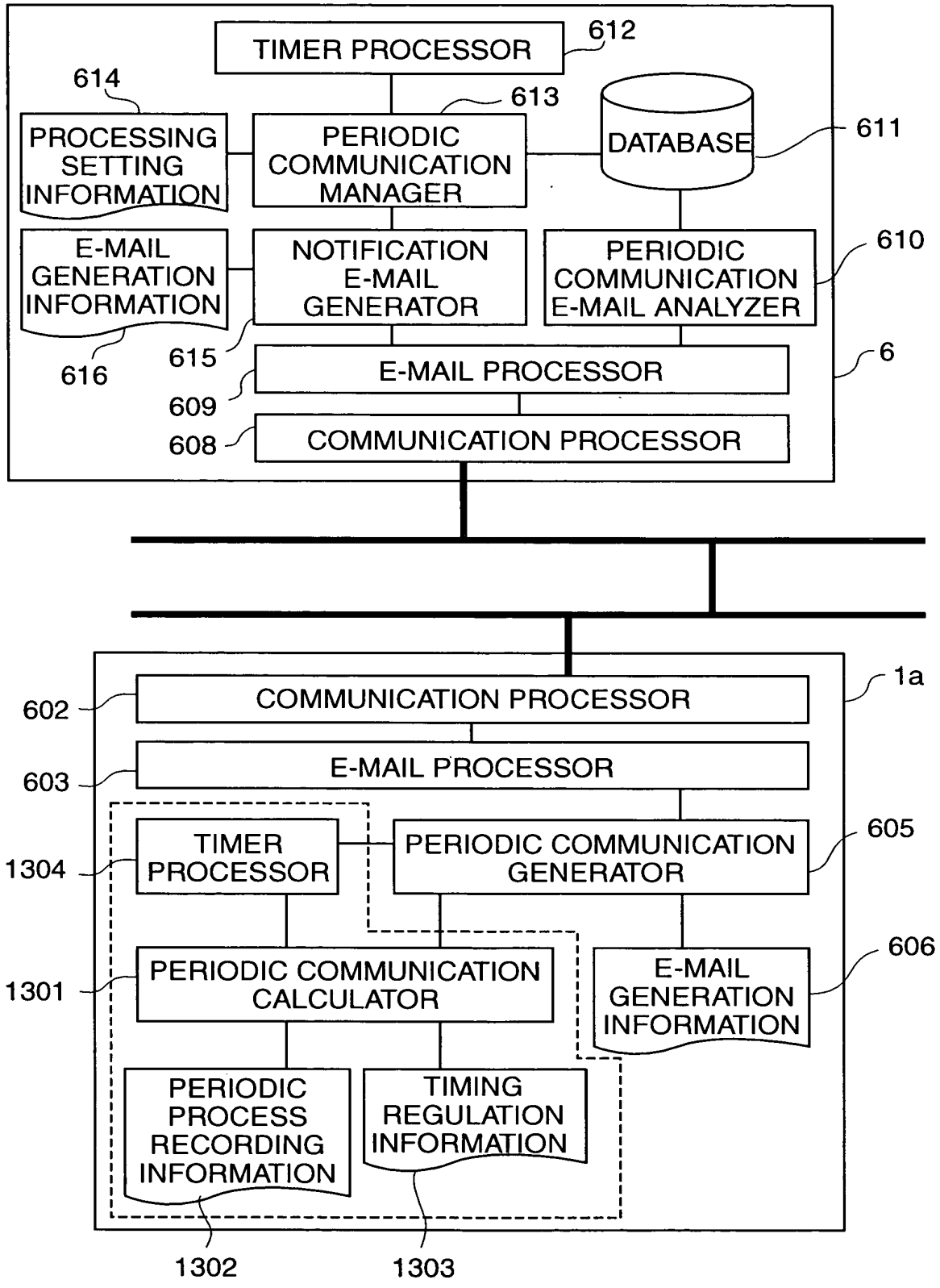

TIMER PROCESSOR
612
614
613
PROCESSING SETTING INFORMATION
PERIODIC COMMUNICATION MANAGER
DATABASE
611
E-MAIL GENERATION INFORMATION
NOTIFICATION E-MAIL GENERATOR
PERIODIC COMMUNICATION E-MAIL ANALYZER
610
616
615
E-MAIL PROCESSOR
6
609
608
COMMUNICATION PROCESSOR
1a
602
COMMUNICATION PROCESSOR
603
E-MAIL PROCESSOR
TIMER PROCESSOR
1304
PERIODIC COMMUNICATION GENERATOR
605
PERIODIC COMMUNICATION CALCULATOR
1301
E-MAIL GENERATION INFORMATION
606
PERIODIC PROCESS RECORDING INFORMATION
TIMING REGULATION INFORMATION
1302
1303

FIG. 18

TIME OF NEXT TRANSMISSION	MAY 10
NUMBER OF TRANSMISSIONS	8 TIMES
LAST TIME TRANSMITTED	MAY 8

FIG. 19

TRANSMISSION TIME CONDITIONS	TRANSMISSION TIMING	E-MAIL CONTENTS	SETTING OF NUMBER OF TRANSMISSIONS
TRANSMISSION TIME EXCEEDED	1 DAY AFTER	1 day after	NUMBER OF TRANSMISSIONS = 1
NUMBER OF TRANSMISSIONS LESS THAN 5	1 DAY AFTER	1 day after	NUMBER OF TRANSMISSIONS + 1
NUMBER OF TRANSMISSIONS LESS THAN 10	2 DAYS AFTER	2 days after	NUMBER OF TRANSMISSIONS + 1
NUMBER OF TRANSMISSIONS LESS THAN 20	3 DAYS AFTER	3 days after	NUMBER OF TRANSMISSIONS + 1
NUMBER OF TRANSMISSIONS 20 OR MORE	5 DAYS AFTER	5 days after	NUMBER OF TRANSMISSIONS + 1

FIG.20

SENDER ID	DATE OF NEXT SCHEDULED RECEPTION	DATE OF LAST RECEPTION
agent001_211	2002/05/10	2002/05/8
agent122_045	2002/05/11	2002/05/10
agent_OP_P1	2002/05/13	2002/05/8
agent_FA_001	2002/05/13	2002/05/10

FIG.21

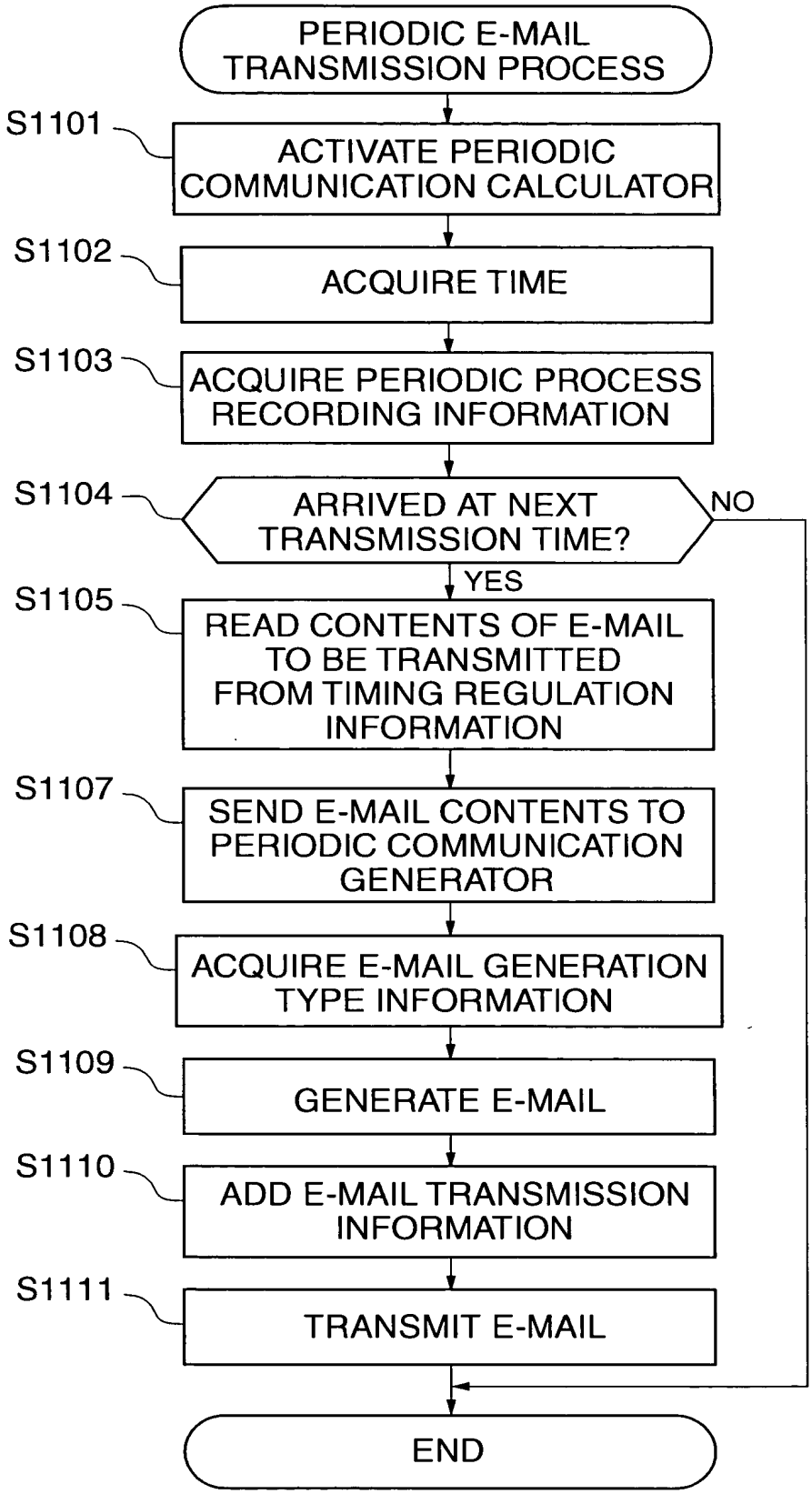

PERIODIC E-MAIL TRANSMISSION PROCESS
S1101
ACTIVATE PERIODIC COMMUNICATION CALCULATOR
S1102
ACQUIRE TIME
S1103
ACQUIRE PERIODIC PROCESS RECORDING INFORMATION
S1104
ARRIVED AT NEXT TRANSMISSION TIME?
NO
YES
S1105
READ CONTENTS OF E-MAIL TO BE TRANSMITTED FROM TIMING REGULATION INFORMATION
S1107
SEND E-MAIL CONTENTS TO PERIODIC COMMUNICATION GENERATOR
S1108
ACQUIRE E-MAIL GENERATION TYPE INFORMATION
S1109
GENERATE E-MAIL
S1110
ADD E-MAIL TRANSMISSION INFORMATION
S1111
TRANSMIT E-MAIL
END

FIG.22

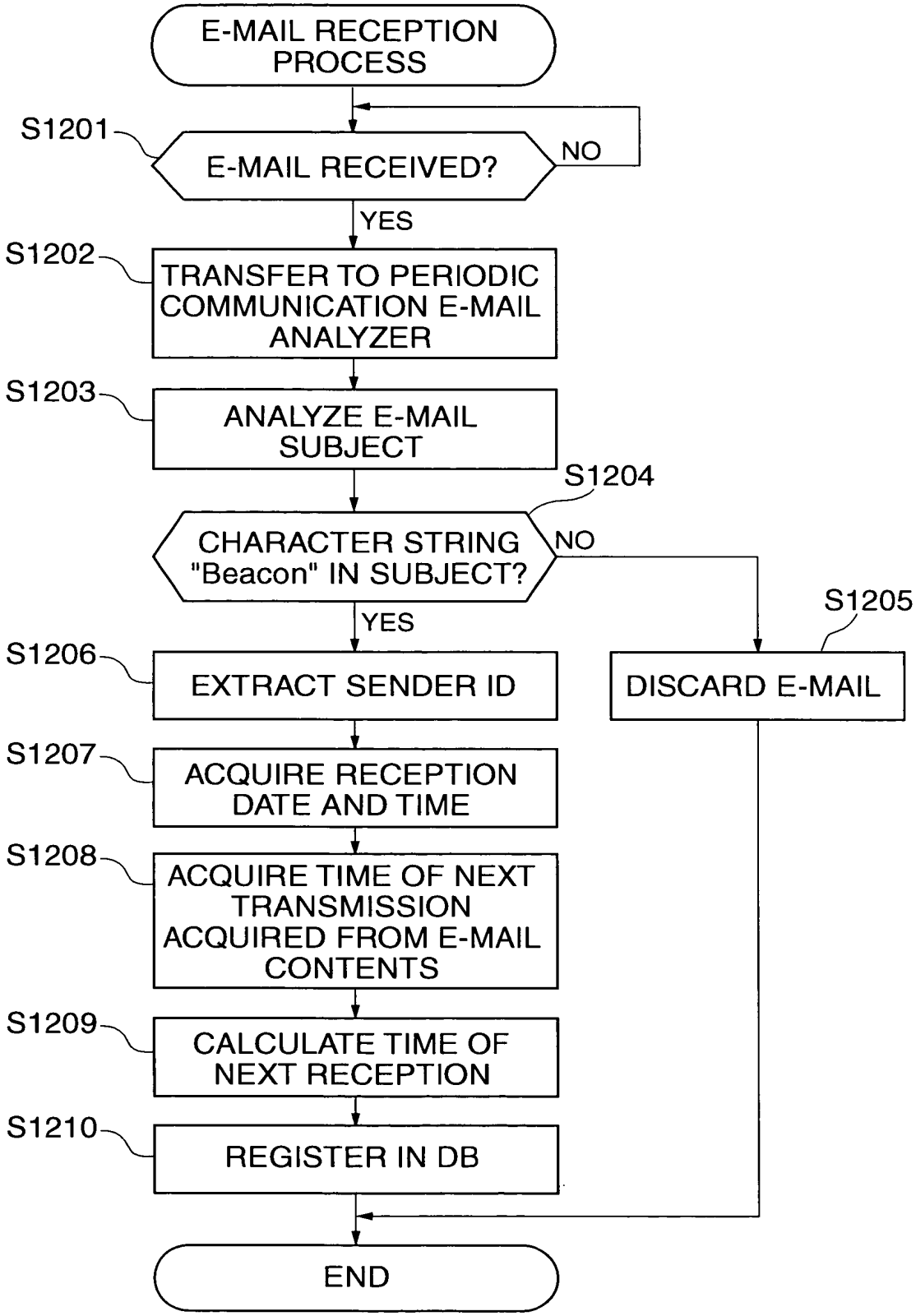

E-MAIL RECEPTION PROCESS
S1201
E-MAIL RECEIVED?
NO
YES
S1202
TRANSFER TO PERIODIC COMMUNICATION E-MAIL ANALYZER
S1203
ANALYZE E-MAIL SUBJECT
S1204
CHARACTER STRING "Beacon" IN SUBJECT?
NO
YES
S1205
DISCARD E-MAIL
S1206
EXTRACT SENDER ID
S1207
ACQUIRE RECEPTION DATE AND TIME
S1208
ACQUIRE TIME OF NEXT TRANSMISSION ACQUIRED FROM E-MAIL CONTENTS
S1209
CALCULATE TIME OF NEXT RECEPTION
S1210
REGISTER IN DB
END

FIG.23

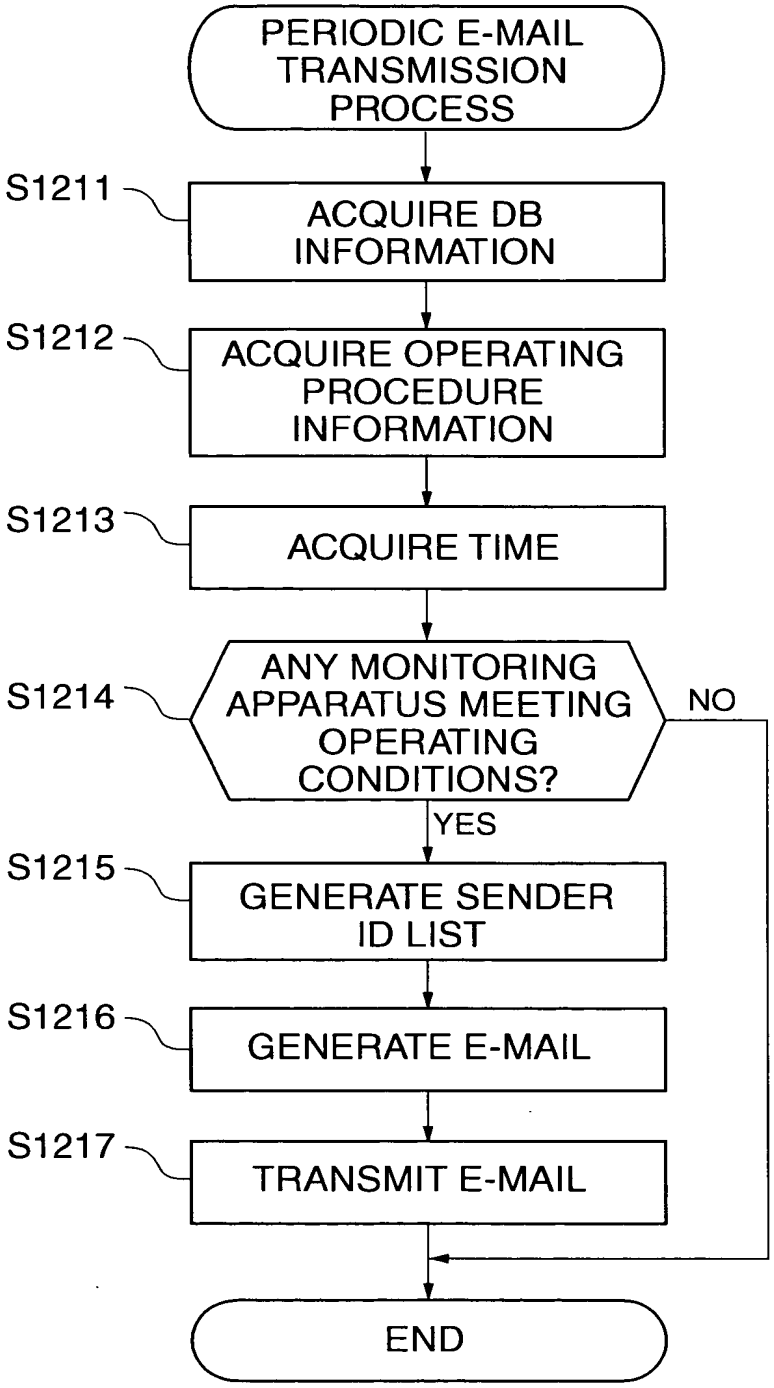

PERIODIC E-MAIL TRANSMISSION PROCESS
S1211
ACQUIRE DB INFORMATION
S1212
ACQUIRE OPERATING PROCEDURE INFORMATION
S1213
ACQUIRE TIME
S1214
ANY MONITORING APPARATUS MEETING OPERATING CONDITIONS?
NO
YES
S1215
GENERATE SENDER ID LIST
S1216
GENERATE E-MAIL
S1217
TRANSMIT E-MAIL
END

FIG. 24

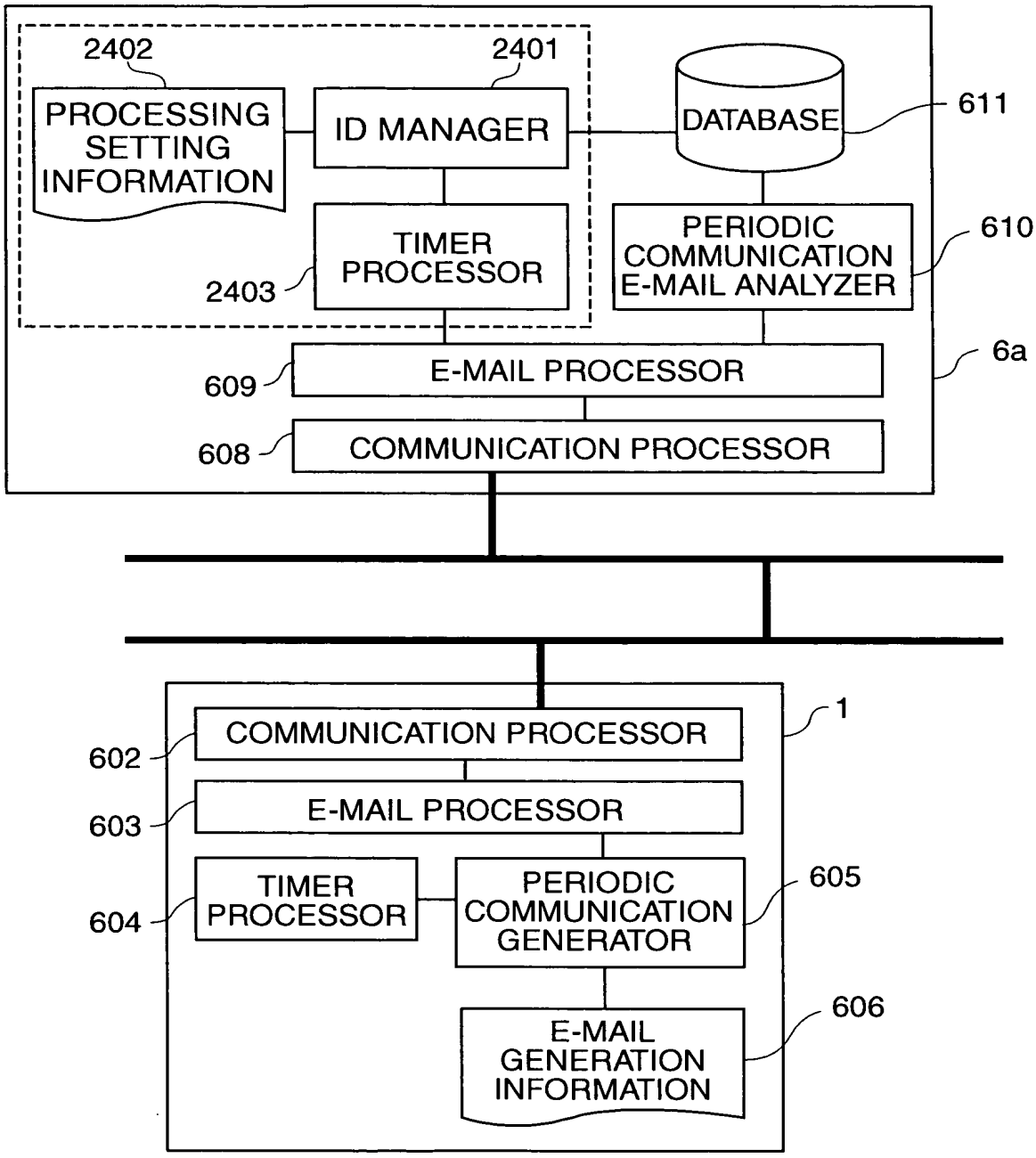

2402
2401
PROCESSING SETTING INFORMATION
ID MANAGER
DATABASE
611
TIMER PROCESSOR
2403
PERIODIC COMMUNICATION E-MAIL ANALYZER
610
609
E-MAIL PROCESSOR
6a
608
COMMUNICATION PROCESSOR
1
602
COMMUNICATION PROCESSOR
603
E-MAIL PROCESSOR
604
TIMER PROCESSOR
PERIODIC COMMUNICATION GENERATOR
605
E-MAIL GENERATION INFORMATION
606

FIG. 25

CONDITION
NUMBER OF RECEPTIONS IS LESS THAN 10 AND 32 DAYS HAVE PASSED SINCE DATE OF LAST RECEPTION
NUMBER OF RECEPTIONS IS 10 OR MORE BUT LESS THAN 20 AND "(DATE OF LAST RECEPTION - DATE OF FIRST RECEPTION) X 2 / NUMBER OF RECEPTIONS + DATE OF LAST RECEPTION" IS PRIOR TO CURRENT DATE
NUMBER OF RECEPTIONS IS 20 OR MORE AND "(DATE OF LAST RECEPTION - DATE OF FIRST RECEPTION)/NUMBER OF RECEPTIONS + DATE OF LAST RECEPTION" IS PRIOR TO CURRENT DATE

FIG.26

SENDER ID	NUMBER OF RECEPTIONS	DATE OF FIRST RECEPTION	DATE OF LAST RECEPTION
agent001_211	44	2001/10/21	2002/05/12
agent122_045	26	2002/01/04	2002/05/16
agent_OP_P1	25	2002/01/04	2002/05/12
agent_FA_001	10	2002/03/10	2002/04/09

FIG. 27

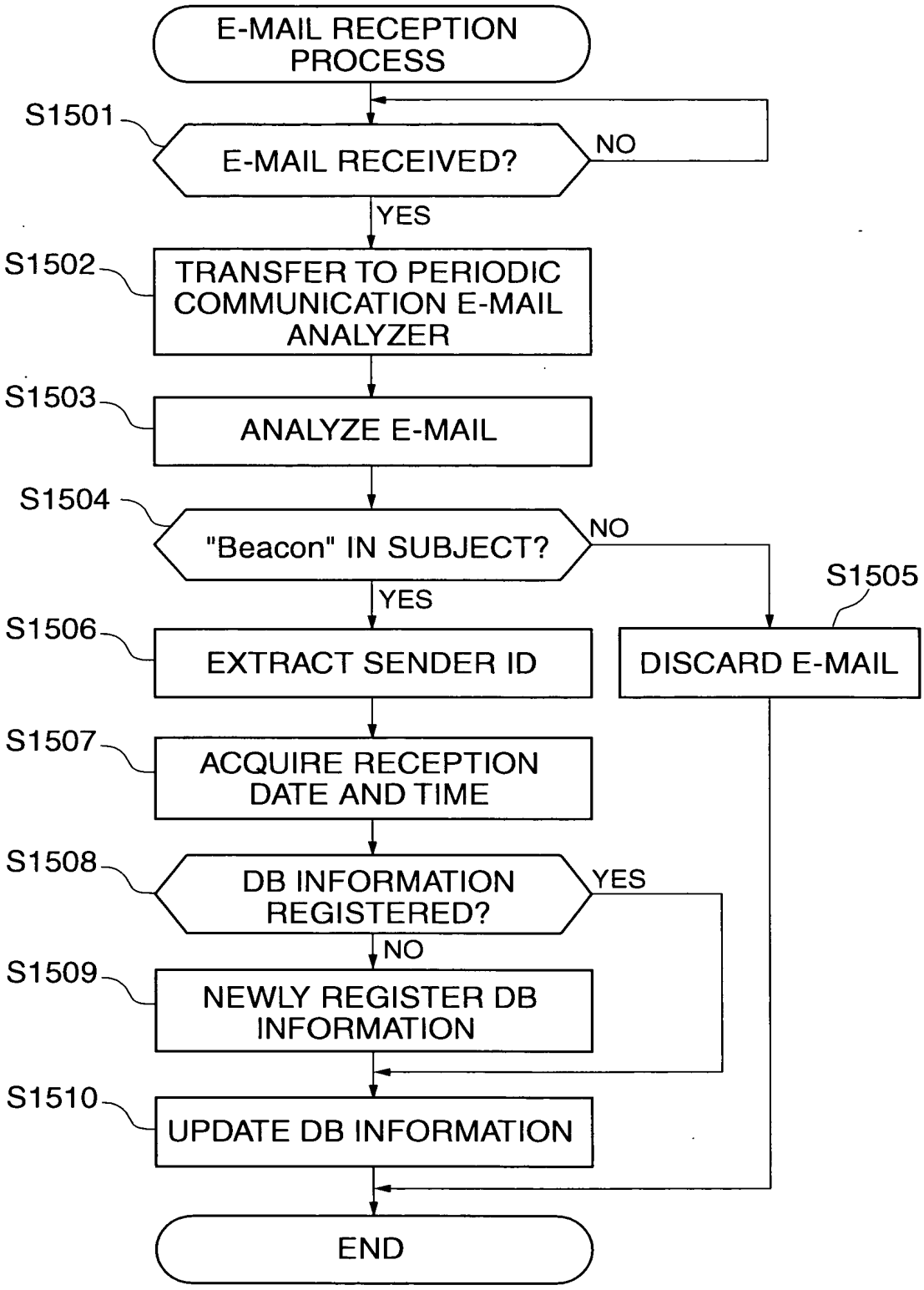
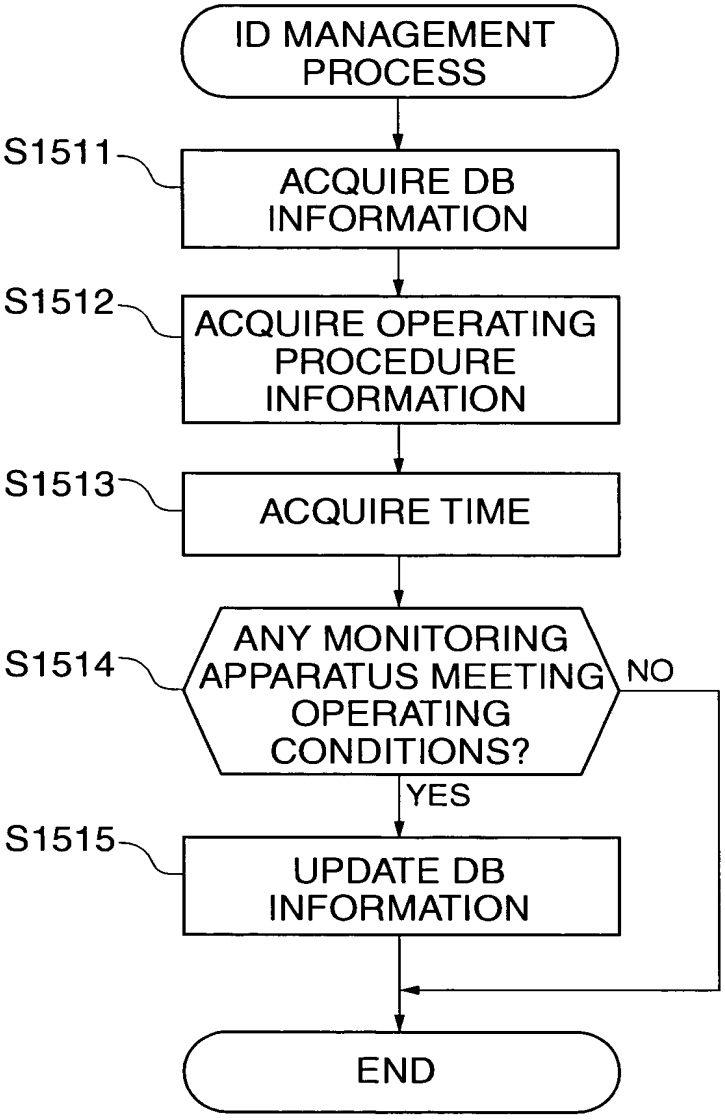

E-MAIL RECEPTION PROCESS
S1501
E-MAIL RECEIVED?
NO
YES
S1502
TRANSFER TO PERIODIC COMMUNICATION E-MAIL ANALYZER
S1503
ANALYZE E-MAIL
S1504
"Beacon" IN SUBJECT?
NO
YES
S1505
S1506
EXTRACT SENDER ID
DISCARD E-MAIL
S1507
ACQUIRE RECEPTION DATE AND TIME
S1508
DB INFORMATION REGISTERED?
YES
NO
S1509
NEWLY REGISTER DB INFORMATION
S1510
UPDATE DB INFORMATION
END

FIG. 28


ID MANAGEMENT PROCESS
S1511
ACQUIRE DB INFORMATION
S1512
ACQUIRE OPERATING PROCEDURE INFORMATION
S1513
ACQUIRE TIME
S1514
ANY MONITORING APPARATUS MEETING OPERATING CONDITIONS?
NO
YES
S1515
UPDATE DB INFORMATION
END